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EXAMINER	
CHOW, CHARLES CHIANG	
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2618	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/12/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No. 10/810,811	Applicant(s) KASAMI ET AL.
	Examiner Charles Chow	Art Unit 2618

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-9,11-17 and 19-21* is/are rejected.

7)☒ Claim(s) *2,10 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Detailed Action

Title

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The current title, "Receiver and receiving method", is not clearly indicating the key features of the invention, for the N possible symbols correlators based upon the removing of the K-chip delayed wave, together with the channel impulse response.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 7-9, 15-17, 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holt et al. [US 2004/0096,017 A1] in view of Rawlins et al. [US 7,010,559 B2].

For Claim 1, Holt teaches a receiver [Fig. 5] comprising

an antenna [502] which receives a radio signal including N possible symbols, $C_1^{(n)}$, $C_2^{(n)}$,...., $C_{M-1}^{(n)}$, $C_M^{(n)]}$, where 1<n < N, each symbol represented by M chips, M is an integer equal to or more than 2 [antenna 502 receives signals modulated according to the Complimentary Coded Keyed CCK, having 64 possible code words, n, made up of eight symbols, M, according to IEEE 802,11.b, paragraph 0013; each symbol of CCK having 8 chips, C1 to C8, applicant's paragraph 0005],

an N correlation units [320-1 to 320-N in Fig. 3 & 120-1 to 120-N in Fig. 1] which are provided corresponding to said N possible symbols, respectively, each correlation unit detecting the degree of correlation with the radio signal received by said antenna

[each of the N correlator is associated with a different codewords in the 64 possible codewords encoded according to their respective phase, paragraph 0017-0018; detecting 1 to N codewords degree of correlation in paragraph 0019]; and

a symbol determination unit [360/160 determines the codeword, Fig. 3/Fig. 1] which determines the symbol included in the radio signal received by said antenna [502] based on the degree of correlation detected by said N correlation units [codeword selector 160/360 receives & make decision for outputting the largest codeword, symbol, based on N degree of correlated output from 120-1 to 120-N, paragraph 0022].

Holt fails to clearly teach the N possible symbols, $\alpha_o.C_1^{(n)}$, $\alpha_o.C_2^{(n)} + \alpha_1.C_1^{(n)}$,....., $\alpha_o.C_M^{(n)} + \alpha_1.C_{M-1}^{(n)}$.

Rawlins et al. [Rawlins] teaches the wherein said N correlation units detect the degree of correlation between the radio signal received by said antenna

[m correlators in col. 7, line 19, correlating received waveform Xi from receiver, col. 6, line 66 to col. 7, line 27; correlating encoded data word Xo-X_{M-1} with encoded coefficients, IEEE 802.11 WLAN, CCK, in col. 1, line 66 to col. 40, Fig. 8] and

the N possible symbols represented by M chips, $\alpha_o.C_1^{(n)}$, $\alpha_o.C_2^{(n)} + \alpha_1.C_1^{(n)}$,....., $\alpha_o.C_M^{(n)} + \alpha_1.C_{M-1}^{(n)}$, each symbol represented by M chips, where $1<n< N$, and α_o and α_1 are non-zero constants, α_2, α_{M-1} are constants [the N <u>groups of possible correlations</u> from the combinations produced in first layer, second, final layer in col. 2, lines 11-40, Fig. 3A/Fig. 3B & the possible correlation associated with the first, second, level in col. 13, lines 64 to col. 14, line 63], in order to quickly detecting the received signal via the correlators. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Holt with Rawlins's plurality of groups for correlations, in order to quickly detecting the received signal via the correlators.

For Claims 7, 15, Holt teaches the receiver [Fig. 5], further comprising

an amplifier which amplifies the wireless signal received by said antenna [502] ; a frequency converter which converts the output signal of said amplifier to a low-frequency signal; and an A/D converter which converts the output signal of said frequency converter to a digital signal [503 includes mixing for frequency converter, amplification & analog to digital conversion, paragraph 0036]

wherein said N correlation units detect the degree of correlation based on the digital signal [each of the N correlator is associated with a different codeword in the 64 possible codewords encoded according to their respective phase, paragraph 0017-0018; detecting 1 to N codewords degree of correlation in paragraph 0019].

For Claims 8, 16, The receiver according to claim 1, wherein N correlation units detect the degree of correlation with respect to a wireless signal of CCK (Complementary Code Keying) modulation scheme or M-ary modulation scheme received by said antenna [correlators 120-1 to 120-N correlating 64 possible codewords encoded by CCK, paragraph 0013, 0018-0019].

For Claim 9, Holt teaches a receiver [Fig. 5,] comprising an antenna [502] which receives a radio signal including N possible symbols, $C_1^{(n)}$, $C_2^{(n)}$,...., $C_{M-1}^{(n)}$, $C_M^{(n)]}$, where 1<n < N, each symbol represented by M chips, M is an integer equal to or more than 2 [antenna 502 receives signals modulated according to the Complimentary Coded Keyed CCK, having 64 possible code words, n, made up of eight symbols, M, according to IEEE 802,11.b, paragraph 0013; each symbol of CCK having 8 chips, C1 to C8, applicant's paragraph 0005],

an N correlation units [320-1 to 320-N in Fig. 3 & 120-1 to 120-N in Fig. 1] which are provided corresponding to said N possible symbols, respectively, each correlation unit detecting the degree of correlation with the radio signal received by said antenna [each of the N correlator is associated with a different codewords in the 64 possible codewords encoded according to their respective phase, paragraph 0017-0018; detecting 1 to N codewords degree of correlation in paragraph 0019]; and

a symbol determination unit [360/160, Fig. 3/Fig. 1] which determines the symbol included in the radio signal received by said antenna [502] based on the degree of correlation detected by said N correlation units [codeword selector 160/360 receives & make decision for outputting the largest codeword, based on N degree of correlated output from 120-1 to 120-N, paragraph 0022].

Holt fails to clearly teach the N possible symbols, $\alpha_o.C_1^{(n)}$, $\alpha_o.C_2^{(n)} + \alpha_1.C_1^{(n)}$,...., $\alpha_o.C_M^{(n)} + \alpha_1.C_{M-1}^{(n)}$.

Rawlins et al. [Rawlins] teaches the wherein said N correlation units detect the degree of correlation between the radio signal received by said antenna

[m correlators in col. 7, line 19, correlating received waveform Xi from receiver, col. 6, line 66 to col. 7, line 27; correlating encoded data word Xo-X_{M-1} with encoded coefficients, IEEE 802.11 WLAN, CCK, in col. 1, line 66 to col. 40, Fig. 8] and

the N possible symbols represented by M chips, $\alpha_o.C_1^{(n)}$... $\alpha_o.C_M^{(n)}+\alpha_1.C_{M-1}^{(n)} + \alpha_2.C_{M-2}^{(n)}...+\alpha_{M-1}.C_1^{(n)}$, each symbol represented by M chips, where $1<n< N$, and α_o and α_1 are non-zero constants, α_2, α_{M-1} are constants [the N <u>groups of possible correlations</u> from the combinations produced from first layer, second, final layer in col. 2, lines 11-40, Fig. 3A/Fig. 3B & the possible correlations associated with the first, second, level in col. 13, lines 64 to col. 14, line 63], in order to quickly detecting the received signal via the correlators.

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Holt with Rawlins's plurality of possible groups for correlations, in order to quickly detecting the received signal via the correlators.

For Claim 17, Holt teaches a wireless LAN apparatus [WLAN in paragarph 0001 & receiver in Fig. 5] comprising

an antenna [502] which receives a radio signal including N possible symbols, $C_1^{(n)}$, $C_2^{(n)}$,...., $C_{M-1}^{(n)}$, $C_M^{(n)]}$, where 1<n < N, each symbol represented by M chips, M is an integer equal to or more than 2 [antenna 502 receives signals modulated according to the Complimentary Coded Keyed CCK, having 64 possible code words, n, made up of eight symbols, M, according to IEEE 802,11.b, paragraph 0013; each symbol of CCK having 8 chips, C1 to C8, applicant's paragraph 0005],

an N correlation units [320-1 to 320-N in Fig. 3 & 120-1 to 120-N in Fig. 1] which are provided corresponding to said N possible symbols, respectively, each correlation unit detecting the degree of correlation with the radio signal received by said antenna [each of the N correlator is associated with a different codewords in the 64 possible codewords encoded according to their respective phase, paragraph 0017-0018; detecting 1 to N codewords degree of correlation in paragraph 0019]; and

a symbol determination unit [360/160 determines the codeword, Fig. 3/Fig. 1] which determines the symbol included in the radio signal received by said antenna [502] based on the degree of correlation detected by said N correlation units [codeword selector 160/360 receives & make decision for outputting the largest codeword, symbol, based on N degree of correlated output from 120-1 to 120-N, paragraph 0022],

a data processing unit configured to perform decoding based on the symbol determined by said symbol determination unit [the symbol generatror 270 generated the symbol selected by 260, Fig. 2, paragraph 0027].

Holt fails to clearly teach the N possible symbols, $\alpha_o.C_1^{(n)}$, $\alpha_o.C_2^{(n)} + \alpha_1.C_1^{(n)}$,...., $\alpha_o.C_M^{(n)} + \alpha_1.C_{M-1}^{(n)}$.

Rawlins et al. [Rawlins] teaches the wherein said N correlation units detect the degree of correlation between the radio signal received by said antenna

[m correlators in col. 7, line 19, correlating received waveform Xi from receiver, col. 6, line 66 to col. 7, line 27; correlating encoded data word Xo-X_{M-1} with encoded coefficients, IEEE 802.11 WLAN, CCK, in col. 1, line 66 to col. 40, Fig. 8] and

the N possible symbols represented by M chips, $\alpha_o.C_1^{(n)}$, $\alpha_o.C_2^{(n)} + \alpha_1.C_1^{(n)}$,...., $\alpha_o.C_M^{(n)} + \alpha_1.C_{M-1}^{(n)}$, each symbol represented by M chips, where $1<n< N$, and α_o and α_1 are non-zero constants, α_2, α_{M-1} are constants [the N groups of possible correlations from the combinations produced in first layer, second, final layer in col. 2, lines 11-40, Fig. 3A/Fig. 3B & the possible correlation associated with the first, second, level in col. 13, lines 64 to col. 14, line 63], in order to quickly detecting the received signal via the correlators. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Holt with Rawlins's plurality of groups for correlations, in order to quickly detecting the received signal via the correlators.

For Claim 20, Holt teaches a receiving method [Fig. 1, Fig. 5-6 & its corresponding description in specification] comprising

receiving a radio signal including N possible symbols, $C_1^{(n)}$, $C_2^{(n)}$,...., $C_{M-1}^{(n)}$, $C_M^{(n)]}$, where $1<n < N$, each symbol represented by M chips, M is an integer equal to or more than 2

[antenna 502 receives signals modulated according to the Complimentary Coded Keyed CCK, having 64 possible code words, n, made up of eight symbols, M, according to IEEE 802,11.b, paragraph 0013; each symbol of CCK having 8 chips, C1 to C8, applicant's paragraph 0005],

determining the symbol included in the radio signal received by said antenna [502] based on the degree of correlation detected by said N correlation units [codeword selector 160/360 receives & make decision for outputting the largest codeword, symbol, based on N degree of correlated output from 120-1 to 120-N, paragraph 0022].

Holt fails to clearly teach the N possible symbols, $\alpha_o.C_1^{(n)}$, $\alpha_o.C_2^{(n)} + \alpha_1.C_1^{(n)}$,...., $\alpha_o.C_M^{(n)} + \alpha_1.C_{M-1}^{(n)}$.

Rawlins et al. [Rawlins] teaches the detecting the degree of correlation between the radio signal received by said antenna

[m correlators in col. 7, line 19, correlating received waveform Xi from receiver, col. 6, line 66 to col. 7, line 27; correlating encoded data word Xo-X_{M-1} with encoded coefficients, IEEE 802.11 WLAN, CCK, in col. 1, line 66 to col. 40, Fig. 8] and

the N possible symbols represented by M chips, $\alpha_o.C_1^{(n)}$, $\alpha_o.C_2^{(n)} + \alpha_1.C_1^{(n)}$,...., $\alpha_o.C_M^{(n)} + \alpha_1.C_{M-1}^{(n)}$, each symbol represented by M chips, where $1<n<N$, and α_o and α_1 are non-zero constants, α_2, α_{M-1} are constants [the N <u>groups of possible correlations</u> from the combinations produced in first layer, second, final layer in col. 2, lines 11-40, Fig. 3A/Fig. 3B & the possible correlation associated with the first, second, level in col. 13, lines 64 to col. 14, line 63], in order to quickly detecting the received signal via the correlators. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Holt with Rawlins's plurality of groups for correlations, in order to quickly detecting the received signal via the correlators.

For Claim 21, Holt teaches a apparatus [receiver in Fig. 5] comprising

an antenna [502] which receives a radio signal including N possible symbols, $C_1^{(n)}$, $C_2^{(n)}$,...., $C_{M-1}^{(n)}$, $C_M^{(n)}$] , where 1<n < N, each symbol represented by M chips, M is an integer equal to or more than 2 [antenna 502 receives signals modulated according to the Complimentary Coded Keyed CCK, having 64 possible code words, n, made up of eight symbols, M, according to IEEE 802,11.b, paragraph 0013; each symbol of CCK having 8 chips, C1 to C8, applicant's paragraph 0005],

an N correlation units [320-1 to 320-N in Fig. 3 & 120-1 to 120-N in Fig. 1] which are provided corresponding to said N possible symbols, respectively, each correlation unit detecting the degree of correlation with the radio signal received by said antenna [each of the N correlator is associated with a different codewords in the 64 possible codewords encoded according to their respective phase, paragraph 0017-0018; detecting 1 to N codewords degree of correlation in paragraph 0019]; and

a symbol determination unit [360/160 determines the codeword, Fig. 3/Fig. 1] which determines the symbol included in the radio signal received by said antenna [502] based on the degree of correlation detected by said N correlation units [codeword selector 160/360 receives & make decision for outputting the largest codeword, symbol, based on N degree of correlated output from 120-1 to 120-N, paragraph 0022].

Holt fails to clearly teach the N possible symbols, $\alpha_o.C_1^{(n)}$, $\alpha_o.C_2^{(n)} + \alpha_1.C_1^{(n)}$,...., $\alpha_o.C_M^{(n)} + \alpha_1.C_{M-1}^{(n)}$.

Rawlins et al. [Rawlins] teaches the wherein said N correlation units detect the degree of correlation between the radio signal received by said antenna

[m correlators in col. 7, line 19, correlating received waveform Xi from receiver, col. 6, line 66 to col. 7, line 27; correlating encoded data word Xo-X_{M-1} with encoded coefficients, IEEE 802.11 WLAN, CCK, in col. 1, line 66 to col. 40, Fig. 8] and

the N possible symbols represented by M chips, $\alpha_o.C_1^{(n)}$, $\alpha_o.C_2^{(n)} + \alpha_1.C_1^{(n)}$,...., $\alpha_o.C_M^{(n)} + \alpha_1.C_{M-1}^{(n)}$, each symbol represented by M chips, where 1<n< N, and α_o and α_1 are non-zero constants, α_2, α_{M-1} are constants [the N groups of possible correlations from the combinations produced in first layer, second, final layer in col. 2, lines 11-40, Fig. 3A/Fig. 3B & the possible correlation associated with the first, second, level in col. 13, lines 64 to col. 14, line 63], in order to quickly detecting the received signal via the correlators. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Holt with Rawlins's plurality of groups for correlations, in order to quickly detecting the received signal via the correlators.

[Note: **Hu et al., US 7,145,969 B1**, teaches an apparatus and method for decoding data which is encoded by CCK, abstract, Fig. 4-14, summary of invention; the 64-vector CCK correlator 702 in Fig. 9, equation (5)].

3. Claims 3-5, 11-13, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holt in view of Rawlins, as applied to claims 1, 9, 17 above, and further in view of Naoki et al. [JP 2000-312,167] and Ishii [US 6,606,347 B1].

For Claims 3, 11, 19, Holt teaches the receiver [Fig. 5]. Holt & Rawlins fail to teach the delay removal unit.

Naoki et al. [Noaki] teaches a delay removal unit [subtractor 3, drawing 1] configured to remove a k-chip delay wave, where k is a constant equal to or more than 2, from the radio signal [delay element 1 delays the received input signal by one chip time, or more chips

time in paragraph 0035-0038, abstract (57)], the delay removal unit having a plurality of outputs [1 outputs to 2, 4, drawing 1], in order to remove the interference signal from the received input signal. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Holt, Rawlins with Naoki' delay element 1 & 2-4, in order to remove the interference signal from the received input signal.

Naoki fails to teach the inputted to said N correlation units.

Ishii teaches the wherein the outputs of said delay removal unit are inputted to said N correlation units, respectively [the subtractor 32 provides outputs to IEU 1_1 to 1_N, Fig. 1, col. 29-47, Fig. 4], in order to despreading with the timing 9 of the secondary path. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Hole, Rawlins, Naoki with Ishii's outputs from substractor 32, in order to despreading with the timing 9 of the secondary path.

For Claim 4, 12, Holt teaches the receiver [Fig. 5]. Holt & Rawlins fail to teach delay removal unit.

Naoki teaches the wherein said delay removal unit [1] removes said k-chip delay wave from the radio signal based on the preceding wave included in the radio signal received by said antenna [the preceding wave in radio signal received by receiver, in abstract (57), the delay removal unit; the delay element 1 delays the received input signal by one chip time, or more chips time in paragraph 0035-0038, abstract (57)], using the same reasoning in claim 3 above to combine Naoki to Holt & Rawlins.

For Claims 5, 13, Holt teaches the receiver [Fig. 5]. Holt & Rawlins fail to the delay removal unit.

Naoki teaches the wherein said delay removal unit removes said k-chip delay wave from the radio signal based on the one-chip delay wave included in the radio signal received by

said antenna [the delay removal unit; the delay element 1 delays the received input signal by one chip time, or more chips time in paragraph 0035-0038, abstract (57)], using the same reasoning in claim 3 above to combine Naoki to Holt & Rawlins.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holt in view of Rawlins, as applied to claim 1 above, and further in view of Takada [US 2002/0155,812 A1] and Naoki [JP 2000-312,167].

For Claim 6, Holt teaches the receiver [Fig. 5]. Holt & Rawlins fail to the comparison unit.

Takada teaches the comprising a level comparison unit [83, 84, Fig. 9] configured to compare a signal level of the signal waves included in the radio signal received by said antenna, removing the wave with larger signal level based on a comparison result of said level comparison unit [removes the signal exceeding over the threshold, Fig. 9, paragraph 0387], to reduce the interference in the received signal. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Hole, Rawlins with Takada's level comparison, in order to reduce the interference in the received signal.

Takada fails to teach the delay removal unit.

Naoki teaches the wherein said delay removal unit [1] removes said k-chip delay wave from the radio signal based on the preceding wave included in the radio signal received by said antenna [the preceding wave in radio signal received by receiver, in abstract (57), the delay removal unit; the delay element 1 delays the received input signal by one chip time, or more chips time in paragraph 0035-0038, abstract (57)], using the same reasoning in claim 3 above to combine Naoki to Holt, Rawlins, Takada.

5. Claim 14 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Holt in view of Rawlins, Naoki, Ishii, as applied to claim 11 above, and further in view of Takada.
For Claims 6, 14 Holt teaches the receiver [Fig. 5]. Holt & Rawlins, Ishii fail to the comparison unit.

Takada teaches the comprising a level comparison unit [83, 84, Fig. 9] configured to compare a signal level of the signal waves included in the radio signal received by said antenna, removing the wave with larger signal level based on a comparison result of said level comparison unit [removes the signal exceeding over the threshold, Fig. 9, paragraph 0387], to reduce the interference in the received signal. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Hole, Rawlins with Takada's level comparison, in order to reduce the interference in the received signal.

Takada fails to teach the delay removal unit.

Naoki teaches the wherein said delay removal unit [1] removes said k-chip delay wave from the radio signal based on the preceding wave included in the radio signal received by said antenna [the preceding wave in radio signal received by receiver, in abstract (57), the delay removal unit; the delay element 1 delays the received input signal by one chip time, or more chips time in paragraph 0035-0038, abstract (57)], using the same reasoning in claim 3 above to combine Naoki to Holt, Rawlins, Ishii, Takada.

Claims Objection

6. Claims 2, 10, 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior arts fail to teach the subject matter having further limitations, the wherein a ratio between αo and α1 is the ratio a ratio between a channel impulse response coefficient of a preceding wave and that of a one-chip delay wave each included in the radio signal received by said antenna, in claims 2, 10, 18.

The following prior arts are also considered, other than the prior arts above. They are: **Chen et al. [US 2004/0091,023 A1**, CCK demodulation in title, Fig. 2, Fig. 1-14, paragraph 0029-0030, 0034-0035], **Hu et al. [US 7,145,969 B1**, an apparatus & method for decoding CCK], **Sato [US 6,188,679 B1], Imaizumi et al. [US 6,678,313 B1], Li et al. [US 6,411,610 B1], Larijani et al. [US 6,603,746 B1], Sheng [US 7,123,647 B1], Awater et al. [US 7,065,158 B2], Chan [US 6,393,599 B1], Miller et al. [US 2006/0164,270 A1], Ido [US 2006/0166,634 A1], Yamao et al. [US 6,351,498 B1], Schilling et al. [US 6,014,373], Raphaeli [US 6,937,648 B2], Sourour et al. [US 6,839,378 B1], Blanchard et al. [US 5,764,690].**

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (571) 272-7889. The examiner can normally be reached on 8:00am-5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR

only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow CC.

February 16, 2007.

EDWARD F. URBAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600